

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-14, drawn to a method for doctoring a coating excess.

Group II, claim(s) 15-24, drawn to a doctoring apparatus.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Groups I and II as originally filed lack unity of invention because even though the inventions of these groups require the technical features of a doctor roll which can rotate so that the doctor roll moves toward or away from the moving surface, moving the doctor roll in a path as it moves toward or away from the moving surface, supporting the doctor roll so that its movement in the direction of the moving surfaces is limited, loading the doctor roll against the moving surface, and doctoring the coating on the moving surface, these technical features are not a special technical feature as they do not make a contribution over the prior art in view of US 4,316,428. US'428 teaches a similar doctor roll, which is restrained and pivotally mounted with a loading mechanism to load the doctor roll against the moving surface.

3. During a telephone conversation with Michael Piontek on March 18, 2010 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

EXAMINER'S AMENDMENT

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Piontek on March 24, 2010.

The application has been amended as follows:

In the Claims:

Cancel Claims 2-11

Cancel Claims 14-24

In Claim 1, line 2, after the phrase "comprising the steps" replace the paragraph "of supporting a doctor roll so that it can rotate, mounting the doctor roll so that it moves toward or away from the moving surface, moving the doctor roll in a path as it moves toward or away from the moving surface, and supporting the doctor roll so that its movement in the direction of the moving surfaces is limited, loading the doctor roll against the moving surface for establishing the force of the doctor roll toward the moving surface, doctoring the coating on the moving surface with the doctor roll, whereby the coating on the moving surface is consistently doctored by said doctor roll." with

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-- of:

- (1) applying excess coating to the moving surface,
- (2) rotating a doctor roll in a doctor roll support having upstream and downstream ends adjacent the moving surface and the excess coating thereon,
- (3) moving the doctor roll support and doctor roll toward or away from the moving surface for controlling the amount of excess coating removed from the moving surface by the doctor roll,
- (4) limiting the movement of the doctor roll and the doctor roll support in the direction the moving surface is moving, the step of limiting movement of the doctor roll support comprising generally pivoting the upstream end of the doctor roll support about an axis upstream of the doctor roll,
- (5) retaining the downstream end of the doctor roll support against a downstream retaining member,
- (6) sliding the downstream end of the doctor roll support against the retaining member,
- (7) loading the doctor roll against the moving surface for establishing the force of the doctor roll toward the moving surface, and
- (8) doctoring the excess coating off the moving surface with the doctor roll,

whereby the coating on the moving surface is consistently doctored by said doctor roll. —

In Claim 12, line 1, after the phrase "A method for doctoring" replace the paragraph "a coating excess applied by a coater to a moving surface with a doctor roll for coating one of a paper or board web, comprising the steps of supporting a doctor roll so that it can rotate to have a movement in a direction opposite that of the direction of said moving surface, retaining the doctor roll with a retaining member at the downstream side of said doctor roll, mounting the doctor roll so that it moves toward or away from the moving surface, moving the doctor roll in a path as it moves toward or away from the moving surface, and pivotally supporting the doctor roll so that its movement in the direction of the moving surfaces is limited, loading the doctor roll against the moving surface for establishing the force of the doctor roll toward the moving surface, doctoring the coating on the moving surface with the doctor roll, whereby the coating on the moving surface is consistently doctored by said doctor roll." with

-- as in Claim 1, further comprising the step of supplying coating to and removing the excess coating from a paper or board web, whereby the coating on the paper or board web is consistently doctored by said doctor roll. --

In Claim 13, line 1, after the phrase "A method for doctoring" replace the paragraph "a coating excess applied by a coater to a moving roll surface of a roll which transfers coating to a paper/board web with a doctor roll, comprising the steps of supporting a doctor roll so that it can rotate, mounting the doctor roll so that it moves

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toward or away from the moving roll surface, and supporting the doctor roll so that its movement in the direction of the moving roll surface is limited, loading the doctor roll against the moving roll surface for establishing the force of the doctor roll toward the moving roll surface, doctoring the coating on the moving roll surface with the doctor roll, whereby the coating on the moving roll surface is consistently doctored by said doctor roll.”

with

-- as in Claim 1, further comprising the steps of

applying a coating excess by a coater to a moving roll surface of a roll, removing excess coating from the roll surface with the doctor roll, then transferring coating from the roll surface to a paper/board web, whereby the coating on the moving roll surface is consistently doctored by said doctor roll and then transferred to the paper/board web. –

Add new Claims:

25. (New) A method as in Claim 1, further including the step of pivoting the doctor roll and doctor roll support about the pivoting axis in the coater integral with the doctor roll.

26. (New) A method as in Claim 1, further including the step of pivoting the doctor roll and doctor roll support about the pivoting axis downstream of the coater, which may be separate from the doctor roll.

27. (New) A method as in Claim 1, further including the step of pivoting the doctor roll support on a curved bar upstream of the doctor roll.

28. (New) A method as in Claim 27, further including the steps of pivoting the doctor roll support off the curved bar upstream of the doctor roll and in the coater which is integral with the doctor roll, and at least particularly sealing the excess coating in the integral coater with the curved bar.

29. (New) A method as in Claim 27, further comprising the step of pivoting the doctor roll off of the downstream end of the curved bar.

30. (New) A method as in Claim 27, further including the step of applying the excess coating to the moving surface upstream of the doctor roll and doctor roll support and closely adjacent the curved bar.

31. (New) A method as in Claim 1, further including the further step of cooling the doctor roll support.

32. (New) A method as in Claim 1, further including the steps of curving the downstream end of the doctor roll support and pivoting and sliding the curved downstream end of the doctor roll support against the retaining member.

33. (New) A method as in Claim 1, further including the step of rotating the doctor roll in a direction so that at the point of contact with coating on the moving surface the doctor roll moves in the opposite direction of the moving surface.

34. (New) A method as in Claim 1, further including the step of preventing lifting of the doctor roll support.

35. (New) A method as in Claim 25, further including the steps of

pivoting the doctor roll support on a curved bar upstream of the doctor roll,
pivoting the doctor roll support off a downstream portion of the curved bar
upstream of the doctor roll at least particularly sealing the excess coating in the coater
with the curved bar,

applying the excess coating to the moving surface upstream of the doctor
roll and doctor roll support and closely adjacent the curved bar, including the
further steps of

cooling the doctor roll support,
curving the downstream end of the doctor roll support,
pivoting and sliding the curved downstream end of the doctor roll support
against the retaining member,
rotating the doctor roll in a direction so that at the point of contact with
coating on the moving surface the doctor roll moves in the opposite direction of
the moving surface, and
preventing lifting of the doctor roll support.

36. (New) A method as in Claim 26, further including the steps of:

pivoting the doctor roll support on a downstream end of a curved bar
upstream of the doctor roll,
cooling the doctor roll support,
curving the downstream end of the doctor roll support,
pivoting and sliding the curved downstream end of the doctor roll support
against the retaining member,

rotating the doctor roll in a direction so that at the point of contact with coating on the moving surface the doctor roll moves in the opposite direction of the moving surface, and
preventing lifting of the doctor roll support.

In the Specification:

On page 3, line 14, after the phrase "pivot point" add
-- (pivot axis) --

REASONS FOR ALLOWANCE

5. The following is an examiner's statement of reasons for allowance:

Claims 1, 12-13, and 25-36 are allowed as patentably distinct over the closest prior art of record. The closest prior art of record is DE 19631913 to Kaipf and US 4,316,428.

As a preliminary overview of the prior art, Examiner notes that while the prior art discloses many methods for doctoring a coating excess by rotating a doctor roll in a doctor roll support comprising the steps of pivoting the doctor roll, retaining the doctor roll, or both pivoting and retaining the doctor roll, independent Claim 1 as amended defines a relationship between the steps of pivoting and retaining, which requires pivoting the upstream end of the doctor roll, such that the movement limits the movement of the doctor roll in the direction of the moving surface (or "in the direction the moving surface is moving") and sliding the downstream end of the doctor roll support against a retaining member which retains the downstream end of the doctor roll

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support. As discussed below, it is this combination of steps – retaining, pivoting, and sliding – which is non-obvious over the prior art.

Regarding Claim 1, Examiner considers Kaipf et al. (DE 19631913) to represent the closest prior art. DE'913 discloses a method for doctoring a coating applied by a coater to a moving surface with a doctor roll, comprising the steps of applying excess coating to the moving surface, rotating a doctor roll in a doctor roll support having upstream and downstream ends adjacent the moving surface and the excess coating thereon, moving the doctor roll support and doctor roll toward or away from the moving surface for controlling the amount of excess coating removed from the moving surface by the doctor roll, limiting movement of the doctor roll and the doctor roll support in the direction the moving surface is moving, the step of limiting movement of the doctor roll support comprising generally pivoting the upstream end of the doctor roll support about an axis upstream of the doctor roll, loading the doctor roll against the moving surface for establishing the force of the doctor roll toward the moving surface, and doctoring the excess coating off the moving surface with the doctor roll (Fig. 1; col. 6, line 6 through col. 8, line 31; English translation p. 3, 11th paragraph through p. 4, 4th paragraph).

While the broadest reasonable interpretation of the claim language reciting "retaining the downstream end of the doctor roll support against a downstream retaining member, where element 28 might be considered a retaining member, Examiner considers that this member does not in fact retain the doctor roll support, but on the contrary supplies a load which forces the doctor roll support away from the doctor roll mount 14 (see Fig. 1 and English translation p. 4, second and third paragraphs). Furthermore, even if 28

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were considered to suggest the step of retaining the downstream end against a downstream member, DE'913 does not suggest either alone or in combination with other references the step of sliding the downstream end of the doctor roll support against the retaining member, because Fig. 1 and the written disclosure, clearly discloses pushing the support off downstream load hose 28 in a direction normal to the hose and not in a manner as to allow sliding the downstream end of the doctor roll support.

Flaum et al. (US 4,316,428) suggest a method for doctoring a coating applied by a coater to a moving surface with a doctor roll, comprising the steps of applying excess coating to the moving surface, rotating a doctor roll in a doctor roll support having upstream and downstream ends adjacent the moving surface and the excess coating thereon, moving the doctor roll support and doctor roll toward or away from the moving surface for controlling the amount of excess coating removed from the moving surface by the doctor roll, limiting movement of the doctor roll and the doctor roll support in the direction the moving surface is moving, the step of limiting movement of the doctor roll support comprising generally pivoting the upstream end of the doctor roll support about an axis upstream of the doctor roll, retaining the downstream end of the doctor roll support against a downstream retaining member, loading the doctor roll against the moving surface for establishing the force of the doctor roll toward the moving surface, and doctoring the excess coating off the moving surface with the doctor roll (Fig. 1, elements 49, 52, and 99; col. 2, lines 43-66). US'428 does not suggest either alone or in combination with other references the step of sliding the downstream end of the

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doctor roll support against the retaining member which is attached so as to pivot with the doctor roll.

No other prior art that anticipates or suggests fairly the instant claims has been located as of the date of this office action. Therefore, independent Claim 1 is allowed over the prior art of record. Claims 12-13 and 25-36 are allowed as depending from the allowed independent claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER WEDDLE whose telephone number is (571) 270-5346. The examiner can normally be reached on Monday-Thursday, 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on (571)272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/A. W./

Examiner, Art Unit 1792

/Michael Kornakov/

Supervisory Patent Examiner, Art Unit 1792